

Title (en)  
UNLICENSED FREQUENCY BAND WITH LICENSED FREQUENCY BAND TIMING

Title (de)  
UNLIZENZIERTES FREQUENZBAND MIT LIZENZIERTEM FREQUENZBANDTAKT

Title (fr)  
BANDE DE FRÉQUENCES SANS LICENCE UTILISANT LA SYNCHRONISATION D'UNE BANDE DE FRÉQUENCES SOUS LICENCE

Publication  
**EP 3146777 A1 20170329 (EN)**

Application  
**EP 15796147 A 20150522**

Priority  
• US 201462002041 P 20140522  
• US 201462002037 P 20140522  
• US 2015032257 W 20150522

Abstract (en)  
[origin: WO2015179811A1] The timing used by communication equipment in a licensed frequency band by is used by the communication equipment for communication in an unlicensed frequency band. Time divisions, such as frames, subframes, timeslots, and symbol times, defined for use in the licensed frequency band are used by the communication equipment to communicate in the unlicensed frequency band. Before a transmitting device transmits within the unlicensed frequency band, the unlicensed frequency band is monitored for radio frequency energy to determine if the spectrum is currently being used. If no energy is detected, or the level is below a threshold, it is determined that the unlicensed band can be used by the transmitter.

IPC 8 full level  
**H04W 72/02** (2009.01); **H04W 4/70** (2018.01); **H04W 72/54** (2023.01)

CPC (source: EP US)  
**H04B 7/2615** (2013.01 - EP US); **H04L 5/001** (2013.01 - EP US); **H04L 5/0053** (2013.01 - EP); **H04L 27/0006** (2013.01 - EP US); **H04W 4/70** (2018.02 - EP US); **H04W 16/14** (2013.01 - US); **H04W 24/08** (2013.01 - US); **H04W 24/10** (2013.01 - US); **H04W 72/02** (2013.01 - US); **H04W 72/0446** (2013.01 - US); **H04W 72/0453** (2013.01 - US); **H04W 72/1215** (2013.01 - EP US); **H04W 72/21** (2023.01 - US); **H04W 72/23** (2023.01 - US); **H04W 72/541** (2023.01 - US); **H04W 74/0808** (2013.01 - EP US); **H04W 76/14** (2018.02 - EP US); **H04W 84/12** (2013.01 - US); **H04L 5/0048** (2013.01 - EP US); **H04W 74/0866** (2013.01 - EP US); **H04W 88/06** (2013.01 - EP US); **H04W 88/08** (2013.01 - US)

Cited by  
CN107659996A

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**WO 2015179811 A1 20151126**; EP 3146649 A1 20170329; EP 3146649 A4 20180214; EP 3146649 B1 20241009; EP 3146777 A1 20170329; EP 3146777 A4 20180214; EP 3146777 B1 20190227; EP 3146781 A1 20170329; EP 3146781 A4 20180221; EP 3146781 B1 20230503; EP 4220993 A1 20230802; EP 4220993 B1 20240925; JP 2017520149 A 20170720; JP 2017520151 A 20170720; JP 2017522757 A 20170810; JP 2017522758 A 20170810; JP 2018042274 A 20180315; JP 6236551 B2 20171122; JP 6438496 B2 20181212; JP 6450435 B2 20190109; US 10098137 B2 20181009; US 10165585 B2 20181225; US 10674525 B2 20200602; US 10721748 B2 20200721; US 11044737 B2 20210622; US 11363615 B2 20220614; US 11683796 B2 20230620; US 2017086213 A1 20170323; US 2017086214 A1 20170323; US 2017118748 A1 20170427; US 2017118765 A1 20170427; US 2018027579 A1 20180125; US 2019182851 A1 20190613; US 2020275460 A1 20200827; US 2022264588 A1 20220818; US 9801198 B2 20171024; WO 2015179816 A1 20151126; WO 2015179821 A1 20151126; WO 2015179826 A1 20151126

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**US 2015032257 W 20150522**; EP 15795438 A 20150522; EP 15796147 A 20150522; EP 15796265 A 20150522; EP 23163418 A 20150522; JP 2016566911 A 20150522; JP 2016566939 A 20150522; JP 2016566970 A 20150522; JP 2016566999 A 20150522; JP 2017208743 A 20171030; US 2015032265 W 20150522; US 2015032272 W 20150522; US 2015032279 W 20150522; US 201515311735 A 20150522; US 201515311768 A 20150522; US 201515311782 A 20150522; US 201515311799 A 20150522; US 201715715514 A 20170926; US 201816215986 A 20181211; US 202015930115 A 20200512; US 202217736385 A 20220504